1983

# ANNUAL REPORT

under

THE WATER POWER ACT

Section 20, Chapter W-6, R.S.S.

Submitted by:

Saskatchewan Department
of the Environment

# ANNUAL REPORT UNDER THE WATER POWER ACT

Section 20, Chapter W-6, R.S.S. 1978

For the Calendar Year 1983

## Legislative

There were no amendments to The Water Power Act or the Water Power Regulations during 1983.

## Hydroelectric Generation in 1983

The gross hydroelectric power generated in Saskatchewan during 1983 was 2,220,645,000 kilowatt hours. This was 6 per cent less than in 1982 and 11 per cent below average for the past 5 years. While there has been some reduction in power generation due to the shut down of Eldroado Nuclear Limited's mine and mill near Uranium City the major reason for reduced power production was caused by below normal precipitation and runoff being experienced.

The gross amounts of hydroelectric power generated over the past five years were as follows:

| | |
|---|---|
| 1979 | 2,426,223,500 kwh |
| 1980 | 2,559,875,000 kwh |
| 1981 | 2,907,544,700 kwh |
| 1982 | 2,371,237,400 kwh |
| 1983 | 2,220,645,000 kwh |

the 5 year average is 2,485,525,000 kwh

## 1983 Climatic Conditions

The South Saskatchewan River basin experienced well below normal precipitation and runoff. Despite reduced outflows from Lake Diefenbaker during the summer months the elevation of the water rose to only 3.16 metres below its full supply level.

Precipitation in the North Saskatchewan River basin were slightly below normal. The streamflow measured at Prince Albert averaged 92 per cent of normal throughout the year.

The upper Churchill River basin experienced slightly below normal precipitation. Although streamflows increased over 1982, they remained below normal in 1983. Precipitation in the Redindeer Lake basin while above normal during the winter months was near normal for the remainder of the year. Inflow into Reindeer Lake was about 90 per cent of normal and discharges from the lake were regulated at 90 per cent of normal throughout the year. The water level of Reindeer Lake which had been very low recovered by 0.6 metres

Precipitation in the Tazin Lake basin was normal for the first ten months and only 37 per cent of normal during November and December. The level of Tazin Lake recovered 0.3 metres in 1983.

## Project Information

### 1. Island Falls Project

Location: On the Churchill River approximately 20 km west of the Manitoba boundary. It includes a control structure on the outlet Reindeer Lake.

Owner: Province of Saskatchewan and operated by SPC.

Status: A new water power licence is being prepared.

Water Source: The Churchill River and Reindeer Lake.

Turbine Capacity: 7 units totalling 125,000 hp (16,000 hp standby).

Power Used: By Creighton, Flin Flon and Hudson Bay Mining and Smelting.

Power Generated in 1983: 709,670,000 kwh.

Major Construction in 1983: Nil.

### 2. Squaw Rapids Project

Location: On the Saskatchewan River about 60 km northeast of Nipawin.

Owner: Saskatchewan Power Corporation.

Status: Licence being prepared.

Water Source: Saskatchewan River.

Turbine Capacity: 396,000 hp.

Power Used: In the SPC provincial grid.

Power Generated in 1983: 873,080,000 kwh.

Major Construction in 1983: Nil.

### 3. Coteau Creek Project

Location: On the South Saskatchewan River at Gardner Dam.

Owner: Saskatchewan Power Corporation.

Status: Licence being prepared.

Water Source: South Saskatchewan River (Lake Diefenbaker).

Turbine Capacity: 252,000 hp.

Power Used: In the SPC provincial grid.

Power Generated in 1983: 603,230,000 kwh.

4. Wellington Lake Project

Location: On the Charlot River about 24 km west of Uranium City.

Owner: Eldorado Nuclear Limited.

Status: New licence being prepared.

Source of Water: Charlot River and Tazin Lake.

Turbine Capacity: Two - 3300 hp units.

Power Used: Sold to North Saskatchewan Electric to supply Uranium City.

Power Generated in 1983: 23,215,000 kwh.

Major Construction in 1983: Nil.

5. Waterloo Lake Project

Location: On the Charlot River about 26 km west of Uranium City.

Owner: Eldorado Nuclear Limited.

Status: A new licence is being prepared.

Water Source: Charlot River and Tazin Lake.

Turbine Capacity: One 10,000 hp unit.

Power Used: No power produced in 1983.

Power Generated in 1983: Nil. This project has not been in operation since August 1982.

Major Construction in 1983: Nil.

6. Charlot River Project

Location: On the Charlot River about 29 km west of Uranium City.

Owner: Eldorado Nuclear Limited.

Status: Licence being prepared.

Water Source: Charlot River and Tazin Lake.

Turbine Capacity: Two 7,600 hp units.

Power Used: Sold to North Saskatchewan Electric to supply Uranium City.

Power Generated in 1983: 11,450,000 kwh. This project has been out of production since June 1983.

Major Construction in 1983: Nil.

7. Nipawin Project

Location: On the Saskatchewan River, 5 km upstream from Nipawin.

Owner: Saskatchewan Power Corporation.

Status: Project in third year of construction. Interim licence being prepared.

Turbine Capacity: 347,850 hp (proposed).

Power to be Used: In the SPC provincial grid.

Major Construction in 1983: Clearing of the reservoir area is 80 per cent completed. The contract for the drainage tunnel was finished in July. About 70% of the concrete work for the spillway, intake and powerhouse has been placed. Installation of the penstocks and excavation for the dam and bypass channel are underway. Diversion of the Saskatchewan River through the spillway is scheduled for October, 1984.